

Within one year of grant,³ commence construction of first two satellites.

Within two years of grant, commence construction of 50 % of the satellites in the authorized constellation.

Within three years of grant, commence construction of 100 % of the satellites in the authorized constellation.

(b) Completion of construction milestones:⁴

Within four years of grant, complete construction of first two satellites.

Within five years of grant, complete construction of 50 % of the satellites in the authorized constellation.

Subject to Section 11(d) below, within six years of grant, complete construction of 100 % of the satellites in the authorized constellation.

(c) Subject to Section 11(d) below, within six and a half years of grant, launch and operation of the entire authorized constellation.

(d) The FCC should adopt a rule which permits downstream flexibility in meeting any remaining milestones once fifty percent of an authorized satellite constellation is built. This should include a procedure for subsequent phase in of milestones based upon a showing of good cause. In no event

^{3/} Grant for purposes of these milestone schedules means the date a construction permit is awarded to the MSS applicant which includes all necessary feeder link assignments (including conditional feeder link authorizations) as set forth in Section 13 below.

^{4/} Completion of construction means the satellite is ready to be shipped to the launch site.

would any MSS permittee/licensee's milestone schedule for launch and operation of its entire system be extended by more than two (2) years.

- (e) The FCC should adopt a requirement that it will issue an order, subject to prior comment by the MSS permittee/licensee, before declaring any permit or license null and void.

12. Regulatory Treatment of Space Segment

Non-geostationary MSS system operators may elect to provide space segment capacity on a non-common carrier basis.

13. Feeder Links

- (a) To the extent possible, the FCC should accommodate all MSS feeder link assignment requests including all steps necessary to achieve feeder link allocations in the specified bands for the full amount requested by the Parties. Preferable assignments are as follows:
 - (1) Constellation: At least 200 MHz of uplinks and 200 MHz of downlinks below 7075 MHz.
 - (2) MCHl: 6725-7025 MHz for downlinks and 300 MHz at Ku-band or lower for uplinks.
 - (3) TRW: Approximately 300 MHz in the 19/20 GHz band for downlinks and approximately 300 MHz in the 29/30 GHz band for uplinks.
 - (4) Motorola: 19.4-19.6 GHz for downlinks and 29.1-29.3 GHz for uplinks.
- (b) With respect to 13(a) above, all necessary steps include an indication in the Report & Order in CC Docket No. 92-166 (expected to be released in October 1994, hereinafter "Report

& Order") that the FCC intends to issue conditional or unconditional authorizations for using the specified bands.

- (c) The FCC should reaffirm its interpretation of international RR 2613 in the NPRM in CC Docket No. 92-166 at ¶¶ 72-74, and seek the adoption of its interpretation internationally.

14. Procedures for Implementing Settlement Agreement

- (a) If the FCC adopts all the material terms of this Agreement in its Report & Order, the Parties agree to amend their applications to conform to the Report & Order.
- (b) If the Report & Order is inconsistent in any respect with the terms of this Agreement, and any Party asserts in good faith by written notice to all of the other Parties by telecopy to counsel of record within five (5) business days of the release of the Report & Order that these inconsistencies are material to it, then the Parties agree to negotiate in good faith to modify this Agreement to attempt to conform to the Report & Order and/or to seek reconsideration of or appeal those aspects of the Report & Order which are inconsistent with this Agreement. If the Parties cannot agree on a modified agreement within twenty (20) days of the release of the Report & Order and decline jointly to seek reconsideration of the Report & Order, this Agreement is terminated and all Parties will have no further rights or obligations hereunder.
- (c) If no Party gives notice under 14(b) above, the Parties agree to withdraw petitions and objections against each other's applications and Section 319(d) waiver requests, and further agree not to file challenges to any future amendment or request to the extent such amendments or requests are consistent with this Agreement.
- (d) No Party will file any objections, petitions, oppositions or comments in opposition to any pending Section 319(d) waiver request on file at the FCC and submitted by any other Party to

this Agreement ("Objections"), and to the extent such Objections have previously been filed, the objecting Party shall file with the FCC within three (3) business days of the date of this Agreement a pleading which in form and substance states that said opposing party will conditionally withdraw its objections, petitions, oppositions or opposing comments subject to the adoption of a Report & Order that is not inconsistent with any of the material terms of this Agreement. Within six (6) business days of the release of the Report & Order, said opposing Parties will inform the FCC in writing whether or not the condition subsequent of such a withdrawal has been met. From the date hereof to at least the date of issuance of the Report & Order, the undersigned do not object to Motorola or MCHL discussing on an ex parte basis with FCC personnel the need for expeditious action on their respective pending Section 319(d) waiver requests.

- (e) If the Report & Order adopts rules which are not inconsistent with any material term of this Agreement, the Parties agree not to appeal or seek reconsideration of the Report & Order to the extent it is consistent with this Agreement. The Parties may, however, petition for clarification, reconsideration and/or appeal any rule or policy adopted by the FCC to the extent such petition or appeal is not inconsistent with this Agreement.

15. Termination of Agreement

This Agreement terminates as to each Party upon the earlier of:

- (a) As to any Party, on the date that it is no longer an MSS permittee/licensee; or
- (b) As to all Parties, on the date that only one U.S. MSS permittee/licensee remains; or
- (c) As set forth in Section 14 above; or

(d) January 1, 2006

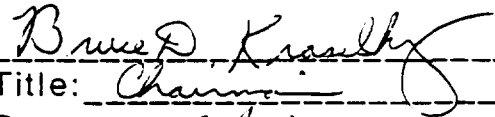
16. Additional Provisions

- (a) This Agreement is contractually binding on the Parties; provided however, that the only recourse any Party asserting a breach of this Agreement has is the filing of a petition with the FCC or, except as to Section 7, to seek relief in equity from a court of competent jurisdiction in the District of Columbia.
- (b) Notwithstanding any other provision contained in this Agreement, no Party or any third party shall have the right to sue any other Party in any court in the U.S. or elsewhere for monetary relief either (1) for a breach of the Agreement or (2) for any other cause of action arising out of performance or nonperformance with this Agreement.
- (c) The Parties agree to act in good faith to implement and perform their obligations under this Agreement.
- (d) This Agreement may only be changed or modified by a written amendment signed by all of the Parties.
- (e) This Agreement supersedes any and all prior agreements among the Parties as such agreements apply to the issues herein.

This Agreement may be executed by the Parties in counterparts and shall have the same effect as if all of the signatures were affixed together hereto.

CONSTELLATION
COMMUNICATIONS, INC.

MOTOROLA SATELLITE
COMMUNICATIONS, INC.


Title: Chairman
Date: 8 Sept. 74

Title: _____
Date: _____

MOBILE COMMUNICATIONS
HOLDINGS, INC.

TRW INC.

Title: _____
Date: _____

Title: _____
Date: _____

This Agreement may be executed by the Parties in counterparts and shall have the same effect as if all of the signatures were affixed together hereto.

**CONSTELLATION
COMMUNICATIONS, INC.**


**MOTOROLA SATELLITE
COMMUNICATIONS, INC.**

Title: _____
Date: _____

Title: _____
Date: _____

**MOBILE COMMUNICATIONS
HOLDINGS, INC.**

TRW INC.



Title: Vice President
Date: September 8, 1994

Title: _____
Date: _____

This Agreement may be executed by the Parties in counterparts and shall have the same effect as if all of the signatures were affixed together hereto.

**CONSTELLATION
COMMUNICATIONS, INC.**

Title: _____
Date: _____

**MOBILE COMMUNICATIONS
HOLDINGS, INC.**

Title: _____
Date: _____

**MOTOROLA SATELLITE
COMMUNICATIONS, INC.**

Michael S. Kennedy

Title: *VP, Regulatory Relations*
Date: *9-8-94*

TRW INC.

Title: _____
Date: _____

This Agreement may be executed by the Parties in counterparts and shall have the same effect as if all of the signatures were affixed together hereto.

**CONSTELLATION
COMMUNICATIONS, INC.**

**MOTOROLA SATELLITE
COMMUNICATIONS, INC.**

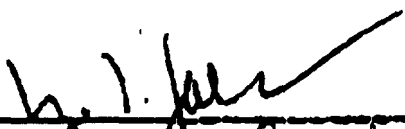
Title: _____
Date: _____

Title: _____
Date: _____

**MOBILE COMMUNICATIONS
HOLDINGS, INC.**

TRW INC.

Title: _____
Date: _____



Title: Assistant Secretary
Date: Sept. 8, 1994

Report
of the
MSS Above 1 GHz
Negotiated Rulemaking
Committee

April 6, 1993

Attachment 1
To IWG1 Report (Annex 1)

MSSAC-41.6
(Final)
IWG1-81
(Final)

Final Report
of
The Majority
Of The Active Participants
of
Informal Working Group 1
To
Above 1GHz
Negotiated Rulemaking Committee
April 6, 1993

3. DESCRIPTION OF TECHNICAL SHARING CRITERIA.

3.1. Interference Sharing Criteria.

During coordination under the full band interference method, system operators would agree on changes to the parameters of their systems to reduce the amount of interference caused to other systems to the agreed upon levels. However, such agreements would only be necessary with respect to the limited number of parameters identified in this section, and each system operator would be able to optimize its system in terms of capacity, cost and service quality within these overall sharing constraints. Each of the parameters on which agreement is to be reached during the coordination process is discussed in the following subsections.

3.1.1. Maximum Downlink PFD Spectral Density. In the downlink direction, the key interference parameter is the total amount of interfering power presented to the receiving mobile terminal, and this interference level can most readily be defined as a maximum permissible PFD spectral density value. Because of the constantly changing geometry of LEO systems and the number of satellites visible at any particular moment at a point in the service area being coordinated, the value of maximum PFD spectral density should be specified as the maximum PFD spectral density that is permitted at any point in the service area from the aggregate of all satellites in the interfering system. It may be desirable to average the maximum permissible PFD spectral density limit over an appropriate and agreed upon period of time to recognize that certain peak system configurations would occur for only small percentages of the time, and such peak configurations and/or operating conditions should be excluded from calculating the aggregate maximum system PFD spectral density. Polarization effects shall also be considered when calculating the maximum PFD spectral density.

This maximum PFD spectral density per system is determined on the basis of achieving coordination between multiple satellite systems and is independent of other PFD spectral density constraints on a per satellite basis that are used as the bases for international coordination of MSS downlinks with terrestrial services under Resolution 46 and the trigger values of RR 2566. This matter is discussed in Section 7 of this Report.

3.1.2. Maximum Aggregate EIRP Areal Spectral Density. In the uplink direction, the key interference parameter is the total interference power presented at the satellite receiver input, and this value can be most conveniently controlled in the coordination process by setting a limit on the aggregate EIRP areal spectral density simultaneously radiated by all user terminals for a single

interfering system that may be located within an appropriately sized reference area within the service area being coordinated. Because of different beam sizes used in the various proposed satellite systems, such aggregate EIRP areal spectral density levels may have to be specified for a set of reference averaging areas that approximate the range of beam sizes being coordinated. Some time averaging may also be desirable to account for short-term peak situations due to random access channels and power control system transients.

It should be noted that these aggregate EIRP areal spectral density limits are independent of the maximum EIRP areal spectral density limits imposed on each user terminal as a result of sharing with other services in the band, i.e. either -15 dBW/4 kHz or -3 dBW/4 kHz depending on the transmitting frequency. This matter is discussed in more detail in Section 7 of this Report.

3.1.3. Polarization. The sense of polarization used should be specified, although only circular polarization is assumed for the user terminal antennas. While the amount of intersystem isolation due to use of different sense of circular polarization in the service link that can be assumed in coordination may be small, any amount of isolation can provide a usable increase in system capacity under full band interference sharing conditions.

3.1.4. Frequency plans. System operators would be required to specify their satellite frequency plans in terms of the individual radio frequency channels (center frequency and bandwidth) used in their system.

3.1.5. Code Structures and Associated Cross-correlation

Properties. There is no shortage of available pseudorandom noise codes that can be selected by a CDMA system operator to insure satisfactory operation of their system. However, there is a small probability that system operators can independently select codes that have cross-correlation artifacts that produce more interference than would be the case of the flat gaussian noise usually assumed in the intersystem interference calculations. For this reason, coordination between system operators would include identification of their code structures to insure that the codes selected have sufficiently good cross-correlation properties that the effects of intersystem interference are no worse than flat gaussian noise.

3.1.6. Antenna Beam Patterns. Antenna beam patterns (number of beams, pointing angle of maximum gain, sidelobe gain patterns and beam array layout), together with frequency plans, can be used to represent the distribution of PFD spectral/EIRP areal spectral density across service area and the assigned frequency band.

3.1.7. Signal Burst Structures. If a system uses a form of transmission that does not radiate a continuous signal, the time dependent characteristics of the transmission should be described in such terms as peak/average power levels, duty cycle, framing and guard time structure, burst synchronization characteristics, etc.

3.1.8. Overall Interference Allowance. The total level of interference from other licensed MSS systems in the band that can be tolerated by a single system.

This Agreement may be executed by the Parties in counterparts and shall have the same effect as if all of the signatures were affixed together hereto.

**CONSTELLATION
COMMUNICATIONS, INC.**

Title: _____
Date: _____

**MOBILE COMMUNICATIONS
HOLDINGS, INC.**

Title: _____
Date: _____

**MOTOROLA SATELLITE
COMMUNICATIONS, INC.**

Michael J. Kennedy

Title: *VP, Regulatory Affairs*
Date: *9-8-14*

TRW INC.

Title: _____
Date: _____